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Route To:

Subject: Forest Health Evaluation of Recreation and Restoration Sites on the Prescott NF (bradshawrd)

To: Forest Supervisor, Prescott NF

On August 3, 2003, I traveled to the Prescott NF, Bradshaw RD, to assess bark beetle activity at various recreation and administrative sites and discuss prevention and suppression alternatives with District staff (Gary Wittman and Ian Fox). On October 10, 2003, I met with Ian Fox to further discuss prevention, suppression, and restoration projects being considered in 2004. In this report, I summarize bark beetle activity within and adjacent to high-value sites on the Forest, discuss previous prevention and suppression actions taken to minimize bark beetle impacts, and make recommendations for future actions.

Bark beetle activity on the Prescott NF

Aerial detection surveys conducted by our Forest Health Protection staff in 2002 found extremely high levels of bark beetle-killed ponderosa pine on the Prescott NF. The 2003 aerial survey of the Prescott NF shows a continuation of last year's pine mortality. The Arizona 5-spined ips (*Ips lecontei*) continues to be the primary cause of pine mortality indicated by the characteristic top-down needle fading. As was the case last year, the western pine beetle (*Dendroctonus brevicomis*) and roundhead pine beetle (*D. adjunctus*) are also part of the beetle complex that continue to overcome and kill pines on the Prescott NF.

Since last August, when the 2002 aerial survey was completed, the level of tree mortality has continued to increase in area and intensity. This year's survey results indicate approximately 93,000 acres on which over 4 million ponderosa pine have been killed by beetle attacks. This is up from approximately 75,500 acres with 400,000 trees killed in 2002. We observed a significant level of pine mortality and spread of the outbreak last fall after our 2002 aerial survey. This tree mortality was captured during this year's August aerial survey, which would help explain the increases recorded this year while fewer fading trees were noticed this summer. Within many of these areas, ponderosa pine mortality is already greater than 25% for a given stand and as high as 95% in others. The vast majority of this pine mortality is related to the ongoing drought that the Southwest Region has been experiencing since 1996. If beetle populations continue to increase at the rate they have over the past few years, we can expect to see even greater levels of mortality throughout much of the Forest. The outbreak on the Prescott NF is truly at historic proportions and is expected to continue until weather patterns change or the suitable host material is no longer available.

Bark beetle activity in developed recreation and administrative sites

From August 3rd through 4th, I examined several developed recreation and administrative sites on the Bradshaw RD. In general, bark beetle activity is still at outbreak levels adjacent to most of

the sites visited. It is important to note that additional tree mortality may become apparent in these sites later this fall. In some cases, beetle activity and subsequent removal of brood trees and hazard trees is starting to significantly reduce the overstory tree component; i.e., Hazlett Hollow CG and others. A brief summary is provided for each site.

Hazlett Hollow CG – No current bark beetle activity within the campground observed. Many trees have been felled, bucked into firewood lengths and made available to campers. Beetles have fully utilized this material and left. There are numerous fading pines immediately adjacent to the campground.

Turney Gulch Group Site – No current faders found within this site. Similar to Hazlett Hollow, many brood trees and hazard trees have been felled. Areas of bark beetle activity were observed just outside this site.

Kentuck CG – Minimal impacts have occurred within this site from bark beetles. Several hazard trees, killed by beetles last year, were seen at the entrance of the campground. Again, bark beetle activity was observed adjacent to this site.

Horsethief Guard Station – There are a number of trees within the station grounds that were killed from last year's beetle attacks, as well as several current faders attacked earlier this summer. There may be additional trees at this site that will fade later this fall. There was also bark beetle activity adjacent to the site.

White Spur CG – Several pockets of pine mortality were observed within this site. There is a pocket of 25 fading pine in the eastern loop and approximately 45 additional faders in the loop with campsites 46-63. Tree densities are high within this site, placing it at a higher risk of experiencing future beetle activity. Adjacent beetle activity is present.

Lower Wolf Creek CG – Near campsite 12, there were several pines fading from the top down. However, there was minimal bark beetle activity in areas adjacent to the campground.

Upper Wolf Creek CG – Several faders within the site were noted. As was the case in Lower Wolf Creek, little bark beetle activity was seen in adjacent areas.

Groom Horse Camp – There were only 2 pockets of pine mortality found within this site. Near sites 22 and 34, there were approximately a dozen trees fading from bark beetle attacks. No beetle activity was seen adjacent to this camp.

Potato Patch CG – Near site 19, several large ponderosa pines are fading from beetle attacks. There appears to be increased beetle activity within and adjacent to this campground, especially near site 22.

Woodchute Trailhead – Several fading pines at this site.

Mingus Mt. CG – No pine mortality or beetle activity noted at this site.

An individual tree preventive spray program was proposed and funded for 2003; however, the program was not undertaken because of a number of factors, including a need for additional NEPA analysis. Thinning and brood tree removal was also proposed and funded for a number of recreation and administrative sites throughout the Forest (see Table 1). This program was accomplished through the use of Forest funds, as FHP funds had been taken by the fire transfer.

Table 1. **Bark beetle treatment areas on the Prescott NF, 2003.**

Treated Unit	Acres Treated	Trees Removed	Date Completed
Deering 20	90	570	April 2003
Thumb Butte-Day Use Area	78	2425	Jan. 2003
Thumb Butte Rd	6.8	400	Jan. 2003
Thumb Butte-Unit 12	15	334	Jan. 2003
Thumb Butte-Unit 6	120.6	1080	April 2003
White Spur CG	53.4	900	April 2003
Yavapai CG	30	1100	April 2003
Kingswood-1	39.2	412	Sept. 2003
Groom Creek	15.1	460 (est)	Active
Schoolhouse Gulch	47.6	400 (est)	Active
Copper Basin-Unit 67	67	1340 (est)	Active
Sky-Y Unit A	4.1	160 (est)	Active
Sky-Y Units B,C,D,G	24.7	728 (est)	Active
Deering 22	28.1	565 (est)	Active
Ponderosa Park I	78.5	1694	Sept 2003
Goldwater Units	120.4	648 (est)	Active
Deering 21	103	1078 (est)	Active
Thumb Butte-2,3,4,5	245	14077 (est)	Sold
Crown King	140	4558 (est)	Awarded
Prescott Southwest	273	7222 (est)	Awarded
Lynx Lake Rec. Area	120	1341 (est)	Awarded
Ponderosa Park II	102.4	2643 (est)	Active
TOTAL	1,802 Acres	44,135 Trees	

Two forest restoration projects were reviewed, one adjacent to the community of Walker and the other adjacent to Crown King. At both locations, there are currently low to moderate levels of bark beetle activity. Stand densities are high and at risk to future beetle-related tree mortality. The areas considered for restoration treatments would include 100 acres hear Walker and 286 acres hear Crown King.

Recommendations

Restoration Projects — The best preventive strategy to minimize future bark beetle activity and associated tree mortality is to implement silvicultural strategies that use an integrated pest management approach. Activities could include thinning to reduce tree densities, removal of infested trees, and appropriate slash management. Thinning dense stands of ponderosa pine relieves competitive stress among the residual trees, making them less susceptible to attack. A treatment of thinning from below and brood tree removal to a target basal area of 60-80 ft^2/ac will help to reduce the overall susceptibility of the stand in the long term. Thinning slash must be removed from the site or treated in such a way as to prevent its becoming brood material for *Ips* beetles. This is extremely important to consider while bark beetle populations are high.

Recreation and Administrative Sites — Based on current stand conditions and high bark beetle populations, ponderosa pine at most of the recreation and administrative sites continues to be highly susceptible to beetle attack. Removal of infested trees and thinning of dense areas is recommended. It is recommended that the infested trees be removed this winter before the brood completes their development and adult beetles emerge next spring. If infested trees are cut, they must either be removed from the site or, if left, should have the bark stripped off, significantly scorched to kill the developing beetle brood, or chipped. If chipping is done while beetles are actively attacking trees, the chips should be removed from the site. Fresh chips can attract beetles that could attack adjacent residual host material.

Because these insects are at epidemic levels at most locations and trees in recreation sites are typically under chronic stress, removal of infested trees and thinning are not a guarantee of tree protection. The use of preventive sprays to protect high-value trees within these sites is warranted and recommended.

It is important to understand that the ponderosa pine forests on and adjacent to the Prescott NF are posed for continued tree mortality at levels similar to those that occurred in the Horsethief Basin area. Increased bark beetle population levels and severe drought conditions preceded that mortality event. The Prescott basin is currently at that point; and if drought conditions occur at a level similar to 2002, stand mortality levels could reach significant levels.

If you have any questions regarding my assessment of current bark beetle activities on the Forest or these sites, its potential effect on residual standing trees, or my recommendations, please let me know. I can be reached at (928) 556-2073.

/s/ John Anhold
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cc: Ernest Del Rio, Gary C Wittman, Ian R Fox, Steve Sams, Leonard Lucero, Debra Allen-Reid, Joel McMillin, Bobbe Fitzgibbon, Michael Manthei, Mailroom R3 Prescott